



*Above: The Jacking and Receiving Pit. At right: Intermediate Jacking Station.*

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## **NESI / New East Side Interceptor Sewer**

*Boston, Massachusetts*

MRCE provided geotechnical and design services to the prime consultant, and is involved with the challenge of planning methods of installing the sewer beneath the Massachusetts Turnpike (I-90), a major interchange of the existing Central Artery (I 93), AMTRAK, and MBTA tracks, and a portion of the MBTA Red Line Station near South Station without interrupting traffic or damaging these facilities.

The 4800 foot New East Side Interceptor replaced a portion of the existing interceptor to allow the new Central Artery to be constructed. The interceptor varied from 72 to 78 inches in inside diameter, and was constructed through narrow streets in a highly commercial portion of Boston through a variety of soil types. Subgrade soil types ranged from soft organic silt to Boston blue clay to glacial till.

An important part of this project was the protection of historic buildings in Boston's Leather District during construction. A detailed condition survey was performed of 45 buildings, 3 to 6 stories high. Many of these 19th and early 20th century buildings are brick bearing wall and timber joist construction supported on stone pedestal footings or pile caps. Some of the buildings were in poor condition with open cracks and evidence of prior settlement. Detailed studies were made of two buildings considered unsafe and repairs were made before starting the new construction. Following a survey of businesses with vibration sensitive equipment, a detailed monitoring program was designed. The construction were limited to those that would produce minimum vibration levels. Monitoring frequency was adjusted for the location and nature of the construction activity. Construction was completed with careful controls resulting in no significant damage to these historic structures.

MRCE designed critical areas involving tunneling and cut-and-cover construction. Sheeting and bracing was designed in critical areas. Underpinning of the passageway for the Red Line subway at Summer Street was detailed in order to obtain early approval from MBTA of the method used. Tasks included dewatering and monitoring of existing utilities.